

**Request to Archive
With The National Centers for Environmental Information
For High-resolution Infrared Radiation Sounder (HIRS) Moisture Column Properties
Provided by University of Wisconsin**

2014-09-02

This information will be used by NCEI to conduct an appraisal and make a decision on the request.

1. Who is the primary point of contact for this request?

W Paul Menzel
University of Wisconsin
6082634930
paul.menzel@ssec.wisc.edu

2. Name the organization or group responsible for creating the dataset.

University of Wisconsin-Madison

3. Provide an overview summarizing the scope of data you want to archive. Describe the outputs, data variables, including their measurement resolution and coverage.

HIRS integrated moisture layer column (QP) and total column moisture (TPW) are determined using radiances measured in spectral bands located within the broad 15 μm and 4.3 μm CO₂ absorption regions and the broad 6.5 μm H₂O absorption region.

The following moisture properties are processed and given as monthly statistics: TPW, upper tropospheric moisture (QH) denoted by moisture found for $P < 440$ hPa, mid-level moisture (QM) denoted by moisture found between 440 hPa and 680 hPa, and low-level moisture (QL) denoted by moisture below 680 hPa. All moisture variables are computed over each 0.5 degree grid cell per day and then averaged over the month. Daily and monthly products contain the following:

QH = Average Upper Tropospheric Moisture
QM = Average Mid-level Moisture
QL = Average Low-level Moisture
TPW = Average integrated total column precipitable water vapor
Ts = Average surface skin temperature

4. What is the time period covered by the dataset? (YYYY-MM-DD, YYYY-MM or YYYY)

From 2000-01-01 to 2009-12-31

5. Edition or version number(s) of the dataset:

V2.3

6. Approximate date when the dataset was or will be released to the public:

2014-12-01

7. Who are the expected users of the archived data? How will the archived data be used?

Climate researchers will investigate moisture trends as depicted in the HIRS data

8. Has the dataset undergone user evaluation and/or an independent review process? Did NCEI participate in design reviews?

It is complementary to the MODIS moisture data set which has been peer reviewed in the literature.

9. Describe the dataset's relationship to other archived datasets, such as earlier versions or related source data. If this is a new version, how does it improve upon the previous version(s)?

It is the only global moisture data set at 20 km resolution that covers 1978 to the present.

10. List the input datasets and ancillary information used to produce the data.

In the HIRS moisture retrieval algorithm, global profiles of temperature, moisture, and ozone from the SeeBor profile database (Borbas et al. 2005) are used. The SeeBor training database consists of 15,704 global profiles of temperature, moisture, and ozone at 101 pressure levels for clear sky conditions. The profiles are taken from the NOAA-88, ECMWF, and TIGR-3 training datasets, ozonesondes from eight NOAA Climate Monitoring and Diagnostics Laboratory (CMDL) sites, and global radiosondes from the NOAA Forecast Systems Laboratory (FSL) radiosonde database. The radiative transfer calculation of the HIRS spectral band radiances is performed with CRTM transmittance model for each profile from the training data set to provide a temperature-moisture-ozone profile/HIRS radiance pair. Estimates of the HIRS instrument noise are added into the calculated spectral band radiances.

For each HIRS instantaneous field of view (IFOV) the presence/absence of clouds is determined by the Advanced Very High Resolution Radiometer (AVHRR) Pathfinder Atmospheres - Extended (PATMOS-x) cloud mask taking advantage of its higher spatial resolution at global area coverage of 4 km.

11. List web pages and other links that provide information on the data.

There are no web pages currently available

12. List the kinds of documents, metadata and code that are available for archiving. For example, data format specifications, user guides, algorithm documentation, metadata compliant with a standard such as ISO 19115, source code, platform/instrument metadata, data/process flow diagrams, etc.

1. The HIRS Moisture Column Algorithm Theoretical Basis Document is available at NCDC. The NCEP Climate Forecast System Reanalysis is documented at <http://cfs.ncep.noaa.gov/cfsr/>

13. Indicate the data file format(s).

1. netCDF-4

14. Are the data files compressed?

No

15. Provide details on how the files are named and how they are organized (e.g., file_name_pattern_YYYYMM.tar in monthly aggregations).

for daily mean e.g. HIRS_noaa-15.2002.365_dailymean_tpw_V2.3.nc

for monthly mean e.g. HIRS_OPER.2009.01_monthlymean_tpw_V2.3.nc

16. Explain how to access sample data files and/or a file listing for previewing. If it is not available now, when will it be available?

Sample data file for January 2009 has been provided to NCDC through ftp

17. What is the total data volume to be submitted?

Historic Data: all historic data or data submitted as a completed collection.

Total Data Volume: 400GB

Number of Data Files: 14760

Continuous Data: data volume rate for a continuous data production.

Total Data Volume Rate: 40GB per Year

Data File Frequency: 120 per Month

Data Production Start: 2000-01-01

18. Are later updates, revisions or replacement files anticipated? If so, explain the conditions for submitting these additional data to the archive.

No additional updates, revisions or replacement data are anticipated.

19. Describe the server that will connect to the ingest server at NCEI for submitting the data.

Physical Location: 1225 West Dayton St, Madison WI 53706

System Name: UW-SSEC

System Owner: UW-SSEC

Additional Information:

20. What are the possible methods for submitting the data to NCEI? Select all that apply.

1. FTP PUSH

21. Identify how you would like NCEI to distribute the data. Web access support depends on the resources available for the dataset.

1. User interface to order and stage data for download

22. Will there be any distribution, usage, or other restrictions that apply to the data in the archive?

No known constraints apply to the data.

23. Discuss the rationale for archiving the dataset and the anticipated benefits. Mention any risks associated with not archiving the dataset at NCEI.

It is the only global moisture data set at 20 km resolution that covers 1978 to the present. Climate models will need realistic atmospheric moisture distributions to improve their analyses and forecasts

24. Are the data archived at another facility or are there plans to do so? Please explain.

UW Madison will also have a copy of the data set

25. Is there an existing agreement or requirement driving this request to archive? Have you already contacted someone at NCEI?

NCDC has contracted UW to deliver this data set

26. Do you have a data management plan for your data?

No

27. Have funds been allocated to archive the data at NCEI?

NCDC has provided resources to YUW to complete this data set, the associated code and documentation

28. Identify the affiliated research project, its sponsor, and any project/grant ID as applicable.

NA10NES4400013

29. Is there a desired deadline for NCEI to archive and provide access to the data?

No deadlines for archive or access.

30. Add any other pertinent information for this request.

None